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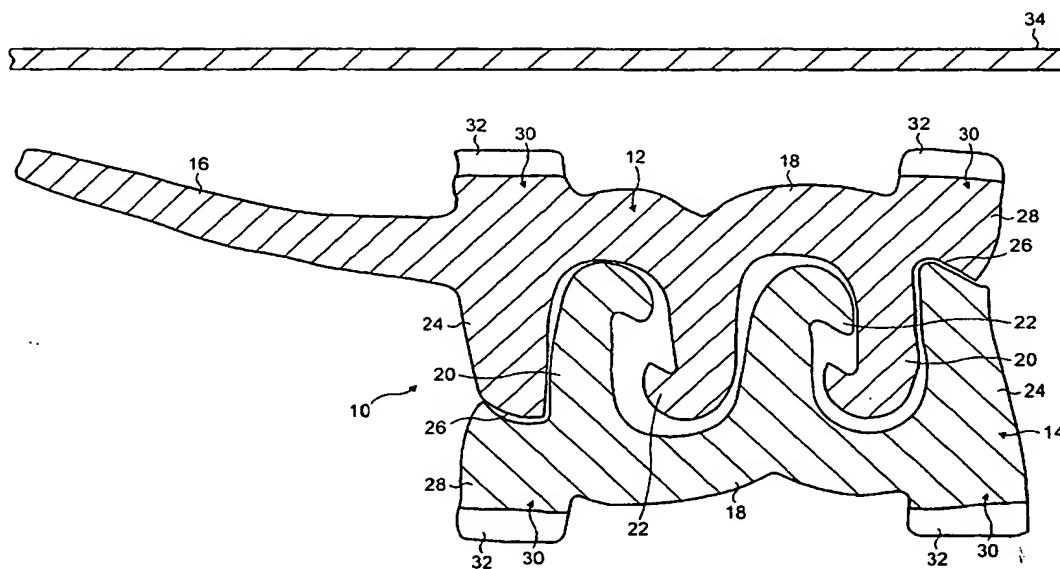
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(54) Title: RECLOSABLE FASTENERS FOR PLASTICS BAGS AND OTHER CONTAINERS



(57) Abstract: A reclosable fastener (10) comprising a male/female closure between a pair of opposed base members (18) has a single flange (16) for attachment of the closure to a web or film (34) on one only of the two base members. The fastener is attached initially to the film (34) by the single flange and then the fastener is additionally attached to the film (34) by heat and pressure applied in the region of attachment ribs (30) on the base members.



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RECLOSABLE FASTENERS FOR PLASTICS BAGS AND OTHER CONTAINERSField of the invention

This invention relates to reclosable fasteners, otherwise known as zippers, for plastics bags and other containers, and
5 is particularly concerned with zippers intended to be applied to a film or web using cross-web techniques.

Background to the invention

When a zipper strip is applied to a film or web, heat and pressure are applied to effect the welding of the zipper to
10 a film or web from which the bag or other container is to be made.

In order to secure the zipper to the film or web, the zipper is conventionally provided with a plurality of flanges on the two interengageable members which together make up the
15 fastener. The most common practice is to provide four flanges, two on each member, in order to seal these flanges to film or web material on each side of the zipper. However, some zippers are provided with only three flanges, and some with only two. Sealing at the flanges is effected in order
20 to keep heat and pressure away from the vulnerable male/female closure elements. However, it is a problem with such multi-flanged zippers that they tend to be bulky and do not easily deflect when used in cross-web procedures.

Summary of the invention

25 It is an object of the present invention to overcome this problem, by providing a zipper which is less bulky.

In accordance with the invention this is achieved by a reclosable fastener comprising a male/female closure between a pair of opposed base members, wherein a single flange for
30 attachment of the closure to a web or film is provided on one only of the two base members.

The single flange is used to attach the zipper initially to the web or film for subsequent sealing/welding of the zipper to the web or film in the region of the base members, by whatever means is appropriate.

5 Brief description of the drawing

In order that the invention may be more fully understood, one presently preferred embodiment of zipper in accordance with the invention will now be described by way of example and with reference to the accompanying drawing which is a
10 schematic cross-sectional view through the zipper.

Description of the preferred embodiment

Referring to the drawing, there is shown a zipper, indicated generally at 10, comprising a first element 12 and a second element 14. The two elements 12 and 14 are generally
15 the same as each other, apart from the fact that element 12 is provided with a single elongate flange 16. Each element 12, 14 comprises a base member or body portion 18 with two upstanding legs 20 which terminate in hooks 22. The respective hooks 22 of the two elements 12 and 14 are
20 interengageable to make the reclosable fastener.

Each element 12, 14 also comprises an upstanding support post 24 at one margin. The support post 24 is slightly longer than the hooked legs 20, 22 so that it extends slightly beyond the tops of the legs. The upper end surface 26 of each post
25 24 is tapered to provide an angled contact surface. Facing each support post 24, on the opposing element, there is provided a heel portion 28, again at the margin. The surface of each heel portion 28 facing the respective post 24 is shaped, i.e. angled, to be complementary to the angled contact
30 surface 26. As can be seen from the drawing, with this arrangement, the respective posts and heels nest with one

another to provide a shape-locking configuration which tends to resist squashing or outward bending under vertical loads. The angled contact surfaces are able to absorb the welding pressure and maintain their linear integrity, thus preventing
5 the hooked legs 20, 22 from being squashed or distorted.

In order to reduce the effects of the welding heat, each of the closure elements 12 and 14 is provided with a pair of ribs 30 on the outside face remote from the legs 20. The respective ribs 30 are provided again at the margins of the
10 closure, in alignment with the posts 24 and heel portions 28. The ribs 30 are provided by a thickening of the material of which each of the two elements is composed. Because of the additional bulk provided by the ribs 30, they also contribute to the resistance of the closure to deformation due to
15 pressure. On each rib 30 there is provided a layer 32 of a material which is a high-performance sealing/welding material or blend of materials, such as EVA for example. This facilitates the welding of the zipper to the adjacent web or film 34. The layers 32 are co-extruded with the closure
20 elements 12 and 14.

The single long flange 16 which is part of element 12 is arranged to face the inside of the bag or container. This single flange 16 is used for initial attachment to the film or web 34 as the zipper is applied to the web by a cross-web
25 technique. The provision of a single long flange provides increased internal strength to the bag by altering the angle at which the load in the bag acts against the zipper closure. The flange 16 is attached to the web or film 34 by the application of heat and pressure from a sealing jaw or jaws
30 (not shown). The flange 16 could be provided on its surface adjacent to the web or film 34 with material to facilitate the

attachment of the flange to the web or film.

Although the invention has been described above in relation to a particular design of zipper, it is to be understood that the invention is not to be regarded as limited 5 to this particular design of zipper, but can be applied to zippers of other designs and having other configurations.

CLAIMS:

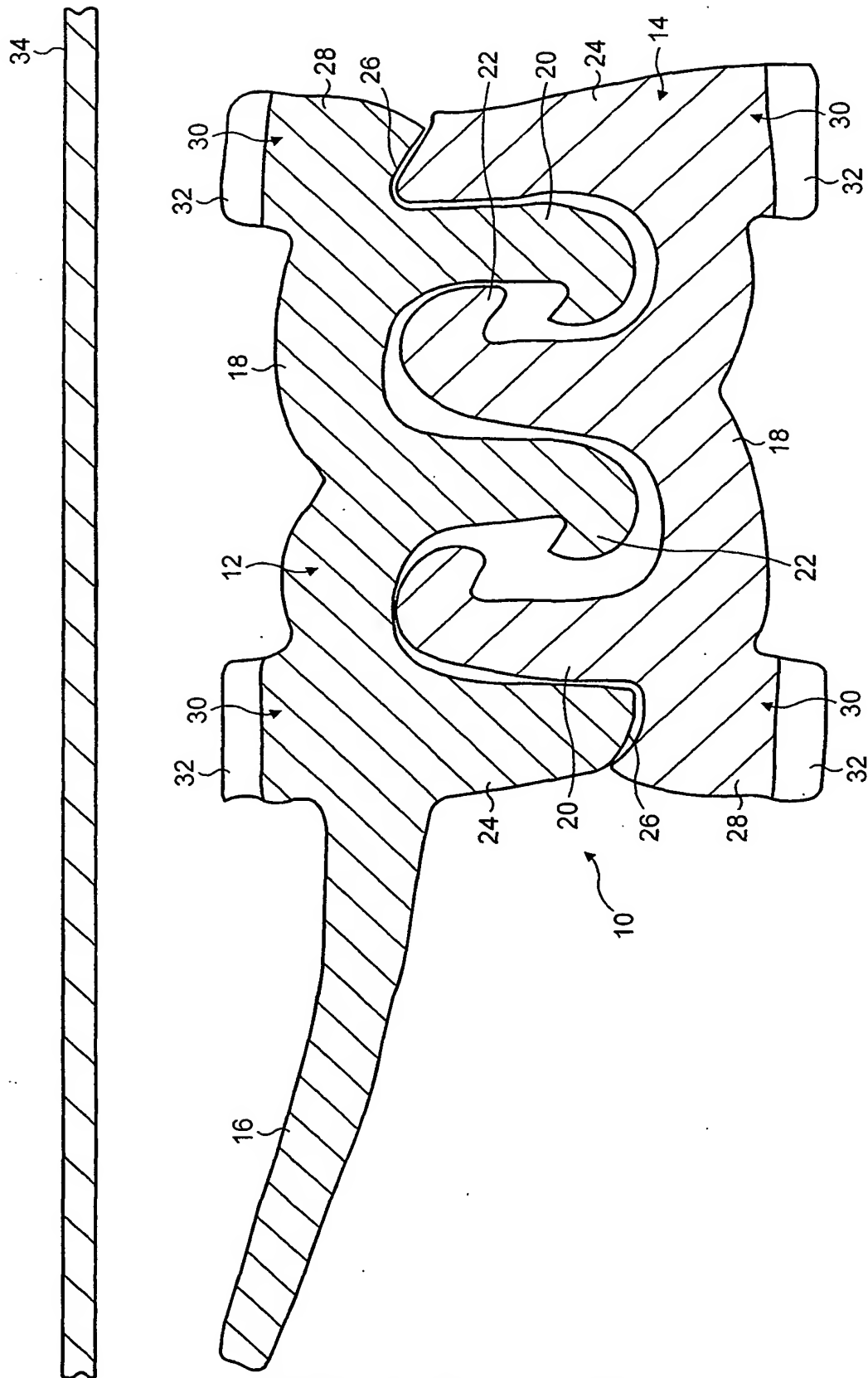
1. A reclosable fastener comprising a male/female closure-between a pair of opposed base members, wherein a single flange for attachment of the closure to a web or film
5 is provided on one only of the two base members.

2. A reclosable fastener as claimed in claim 1, in which the base members include means to attach the fastener additionally to the web or film.

3. A reclosable fastener as claimed in claim 2, in
10 which the base members are provided with ribs arranged to be attached to the web or film.

4. A reclosable fastener as claimed in claim 3, in which the ribs are positioned at the margins of the respective base members.

15 5. A reclosable fastener as claimed in claim 3 or 4, in which a layer of sealant material is co-extruded on to each rib.



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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 817 188 A (MINIGRIP INC.) 28 March 1989 (1989-03-28) column 2, line 44 -column 3, line 63; claims 1,2; figures 1-5	1,2
X	US 5 672 009 A (ILLINOIS TOOL WORK INC.) 30 September 1997 (1997-09-30) column 2, line 28 -column 3, paragraph 3; claims 1,2,5; figures 1-4	1,2
X	US 4 673 383 A (MINIGRIP INCORPORATED) 16 June 1987 (1987-06-16)	2-4
Y	column 2, line 34 -column 5, line 40; claims 1-4; figures 1-5	5
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- *8* document member of the same patent family

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>US 4 731 911 A (MINIGRIP INC.) 22 March 1988 (1988-03-22) column 3, line 47 -column 7, line 31; claims 1,3; figures 1-5A -----</p>	5

INTERNATIONAL SEARCH REPORT

Information on patent family members

In International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4817188	A	28-03-1989	CA 1316877 A1 FR 2628067 A1 GB 2216494 A ,B	27-04-1993 08-09-1989 11-10-1989
US 5672009	A	30-09-1997	AU 2350697 A AU 716650 B2 AU 3016299 A BR 9702383 A CA 2204712 A1 EP 0808776 A1 NZ 314842 A US 6044621 A	27-11-1997 02-03-2000 19-08-1999 07-07-1998 21-11-1997 26-11-1997 26-06-1998 04-04-2000
US 4673383	A	16-06-1987	CA 1268651 A1	08-05-1990
US 4731911	A	22-03-1988	CA 1298244 A1 US 4835835 A	31-03-1992 06-06-1989